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INCREMENTAL PROGNOSTIC VALUE OF LEFT VENTRICULAR FUNCTION ANALYSIS OVER CORONARY ANGIOGRAPHY WITH MULTI-DETECTOR COMPUTED TOMOGRAPHY

ACC Poster Contributions
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Background: Multi-detector computed tomography coronary angiography (CTA) is valuable for risk-stratification in coronary artery disease (CAD). In addition, the technique can provide information on left ventricular (LV) function, which is an established prognostic marker. The purpose of this study was to determine if LV function analysis has an incremental prognostic value over the detection of CAD using CTA.

Methods: In 728 patients, (400 male, age 55 ± 12 years) with suspected CAD referred for cardiac evaluation, coronary artery stenosis and LV function were assessed using CTA. The following events were combined in a composite end-point: all-cause mortality, non-fatal infarction and unstable angina pectoris. CTA was classified as normal, non-significant CAD (<50% luminal narrowing) or significant CAD (≥50% luminal narrowing). The left ventricular (LV) end-systolic volume (LVESV) and LV end-diastolic volume (LVEDV) were calculated and the LV ejection fraction (LVEF) was derived. The following thresholds were used for LV function parameters: LVEDV >120ml, LVESV >70ml, LVEF< 45%. Univariate and multivariate Cox regression analysis was performed.

Results: CTA was normal in 274 patients (38%). Non-significant and significant luminal narrowing was observed in 233 patients (32%) and 221 patients (30%), respectively. During follow-up (mean 766 ± 312 days) an event occurred in 45 patients (6.2%). After multivariate correction for baseline risk factors and CTA, LVEF (hazard ratio (HR) 3.61, 95% confidence interval (CI) 1.68-7.77, $p<0.05$) and LVESV (HR 0.95, CI 1.00-1.01, $p<0.05$) were independent predictors.

Conclusions: LV function analysis provides incremental prognostic information beyond the assessment of coronary artery stenosis using CTA. Therefore, the addition of LV function parameters to the evaluation of CAD may improve risk stratification.